



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/099,972	03/19/2002	Shunpei Yamazaki	740756-2457	5505
31780	7590	09/08/2004	EXAMINER	
ERIC ROBINSON PMB 955 21010 SOUTHBANK ST. POTOMAC FALLS, VA 20165			DEO, DUY VU NGUYEN	
			ART UNIT	PAPER NUMBER
			1765	

DATE MAILED: 09/08/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.		Applicant(s)	
	10/099,972		YAMAZAKI ET AL.	
	Examiner		Art Unit	
	DuyVu n Deo		1765	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 19 March 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 7-14, 21-29 and 37-46 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 7-14, 21, 22, 24, 25 and 37-46 is/are allowed.
- 6) ☒ Claim(s) 23 and 26-29 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 19 March 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 23, 27, 29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lin et al. (US 5,670,062) and Wolf (Silicon Processing for the VLSI Era)

Lin describes a method for forming taper lines comprising: forming a first, second and third conductive layer on top of each other respectively, etching the first to third conductive layers to form a conductive layer with a taper portion (col. 3, line 34, 35, line 65-68; col. 4, line 12, 13). Unlike claimed invention, Lin doesn't describe subjecting the conductive layer with a taper portion to a plasma treatment. However, he teaches to remove the resist layer with conventional resist stripper and Wolf shows that the conventional resist stripper includes subjecting the resist, and the conductive layer since it is exposed by the resist layer, to an oxygen plasma (page 518). Therefore, it would have been obvious for one skilled in the art in light of Wolf's teaching in order to remove the resist with a reasonable expectation of success.

Referring to claim 27, Li suggests the 2nd conductive layer can be comprises of Al (col. 1, line 58-60).

3. Claims 26, 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lin and Wolf as applied to claim 23 above, and further in view of Colgan et al. (US 5,912,506).

Art Unit: 1765

Referring to claims 26, 28, Lin doesn't suggest the first conductive layer comprises of W or Mo and the third conductive layer comprises of Ti. He shows that the conductive layers can be different types of material (col. 1, line 58-60, summery). Colgan describes different structures that having a first layer of Mo or W, the second layer of Al, and the third layer of Ti (col. 3, line 5-52). Therefore, it would have been obvious for one skilled in the art at the time of the invention to use other type of material as suggested by Colgan in order to form a TFT structure with a reasonable expectation of success.

Specification

4. The lengthy specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

Allowable Subject Matter

5. Claims 7, 9, 11-14, 21, 24, 37, 39, 41-46 are allowed because applied prior art doesn't suggest or teach etching the second conductive layer with the second width and the third conductive layer with the third width to form a third-shaped conductive layer comprising a lamination of a first conductive layer with a fourth width, a second conductive layer with a fifth width, and a third conductive layer with sixth width.

Claims 8, 10, 22, 25, 38, 40 are allowed because applied prior art doesn't describe etching the second conductive layer with the first width and the third conductive layer with the second width to form a fourth-shaped conductive layer comprising a lamination of a first conductive layer with a fourth width, a second conductive layer with a fifth width, and a third conductive layer with a sixth width.

Art Unit: 1765

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to DuyVu n Deo whose telephone number is 571-272-1462. The examiner can normally be reached on 6:00-3:30; with alternate Friday off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nadine Norton can be reached on 571-272-1465. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

DVD

9/7/04

